

Notes on the avifauna of the northern Serranía de Pirre, Panama

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SUMMARY.—We surveyed the avifauna of the foothills and lowlands of the northern Serranía de Pirre, in Darién National Park, on 20–22 April and 4 June–8 July 2014. The survey was conducted in conjunction with a study of the natural history and ecology of Sapayoa *Sapayoa aenigma*. In total, we recorded 219 species of 43 families, including seven classed as globally Near Threatened, three as Vulnerable and one as Endangered. Notes on the natural history of 19 species are presented, including some of the first published data on the breeding biology of poorly known species such as Double-banded Greytail *Xenerpestes minlosi* and Slate-throated Gnatcatcher *Poliophtila schistaceigula*. Furthermore, we include previously unpublished notes on the natural history of *Sapayoa aenigma*.

Spanning 5,800 km² on the Colombia / Panama border, Darién National Park (hereafter DNP) and UNESCO World Heritage Site is one of the largest protected areas in Central America (IUCN 1992). Located within the Tumbes–Chocó–Magdalena global biodiversity hotspot, the DNP supports a substantial part of the Chocó biogeographic region (hereafter Chocó) found within Panamá. With an area of 260,595 km², the Chocó represents one of the smallest and most threatened biogeographic regions in the Neotropics, harbouring many endemic flora and fauna. The DNP falls within two BirdLife International Endemic Bird Areas (EBA): the Darién Highlands EBA, with 17 range-restricted species, all of which occur in Panamá, and the Darién Lowlands EBA, also with 17 restricted-range species, 15 of which occur in Panamá (Angehr *et al.* 2004). The DNP represents one of the last refuges in Central America for species requiring large tracts of continuous habitat, including Harpy Eagle *Harpia harpyja*, Giant Anteater *Myrmecophaga tridactyla* and Jaguar *Panthera onca*. Additionally, the area still is ripe for discovery, as shown by the description of new species of *Eleutherodactylus* (Anura: Leptodactylidae) in 2002 (Ibáñez D. & Crawford 2004) and *Pristimantis* (Anura: Strabomantidae) in 2010 (Crawford *et al.* 2010).

Several ridges, or ‘serranías’, dominate the topography of DNP. The Serranía de Tacarcuna, reaching 1,875 m, flanks the Caribbean slope of the park. The Serranía de Pirre (hereafter SDP) is centrally located and reaches 1,550 m (Angehr *et al.* 2004, Myers *et al.* 2007). The Pacific slope includes the Serranías de Sapo and Jingurudó, which reach elevations of 1,145 m and c.1,700 m, respectively (Angehr *et al.* 2004). Between these ridges lie the valleys of the Tuira, Chucunaque, Sambú, Jaqué and Balsas rivers.

Within DNP, the SDP and surrounding environs, especially the Chucunaque and Tuira river valleys, have received substantial attention from ornithologists and collectors. The nearby towns of El Real and Yaviza have also received considerable attention, and substantial collections at these localities were made, especially in the first half of the 20th century (Siegel & Olson 2008).

The composition of the avifauna at SDP is one of the best-studied in Panamá (Goldman 1920, Griscom 1929, Wetmore 1965, 1968, 1972, Wetmore *et al.* 1984, Robbins *et al.* 1985). However, most of these efforts have focused on the southern SDP, specifically the higher

elevations of Cerro Pirre and the area around Cana camp (Goldman 1920, Griscom 1929, Robbins *et al.* 1985). Even fewer data are available on the avifauna of the northern SDP (Robbins *et al.* 1985). The majority of publications to date have focused on species lists, range extensions and other notable records for the area (Angehr *et al.* 2006b, Campos-Cedeño & Vallely 2014, Jones & Komar 2014, 2015). Here we include several observations that contribute substantially to our knowledge of avian natural history from the northern SDP.

We surveyed lower and middle elevations of SDP (c.90–650 m) around Rancho Frío station on 20–22 April and 4 June–8 July 2014. These observations were made during a study of the natural history and ecology of Sapayoa *Sapayoa aenigma*. Here we highlight novel findings concerning this species, in addition to those for 18 other species, including the first published nest description for Double-banded Greytail *Xenerpestes minlosi*, as well as observations of locally threatened and declining species, such as Red-throated Caracara *Ibycter americanus* and Grey-cheeked Nunlet *Nonnula frontalis*.

Study area

Rancho Frío station (08°01'10.1640"N, 77°43'56.2800"W; 93 m), operated by the Autoridad Nacional del Ambiente (ANAM), lies at the base of the Pacific slope of the northernmost SDP (Fig. 1). The name 'Rancho Frío' was originally applied to a campsite on the Rancho Frío–Cerro Pirre trail; in the present day, it refers only to the ANAM station (Siegel & Olson 2008). Approximately 50 km in length and 25 km wide, the SDP extends south from here to the Colombian border (Robbins *et al.* 1985). The station is accessed via a 17 km-road and trail, the El Real–Rancho Frío trail, which originates in the town of El Real de Santa Maria, on the Tuira River. The nearest town, Pirre Uno, is 4 km from the station. Topography along this route is predominantly flat, with the vegetation community containing elements of both more humid forests to the south and seasonally drier forests to

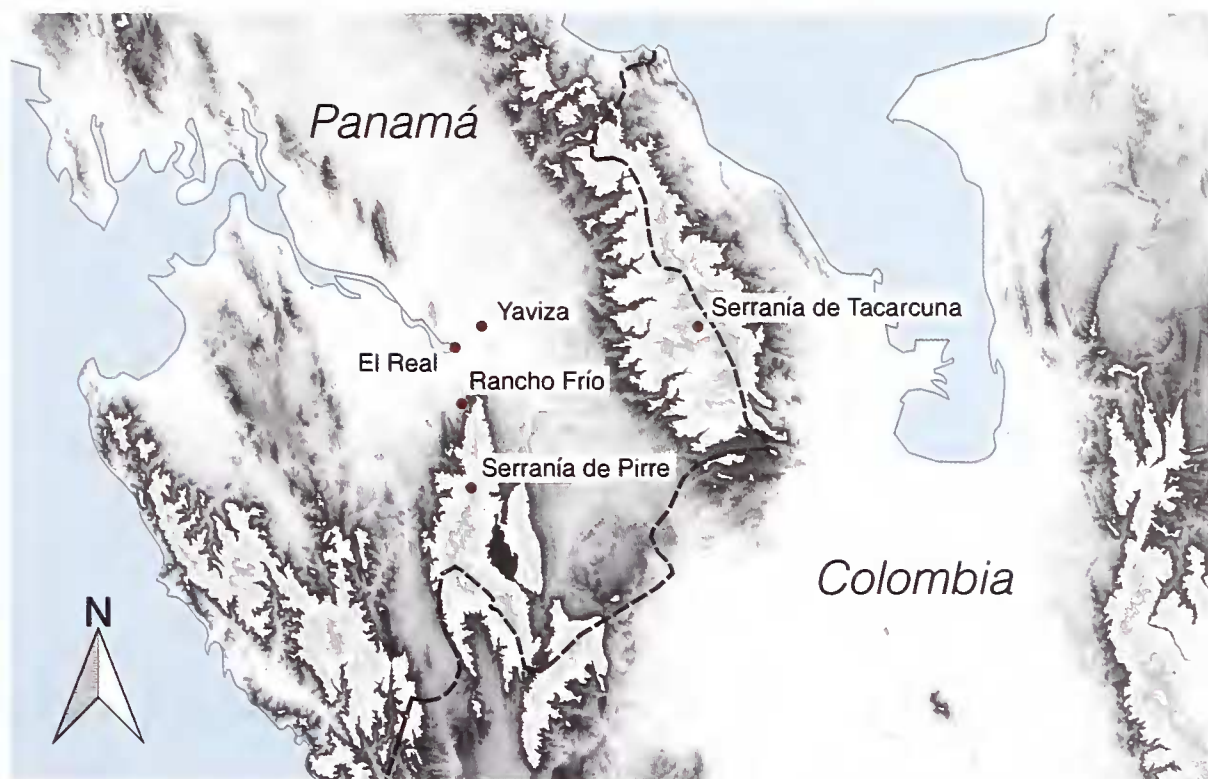


Figure 1. Map of the study locality and the northern Serranía de Pirre, Panama.

the north. The first 13 km traverses a landscape mosaic dominated by agricultural fields and cattle pastures, with isolated patches of second growth and occasional marshes. The last 4 km traverses a protected buffer zone and the outer limits of DNP. Habitat along this section is predominantly secondary with a mean canopy height of 15–20 m. Taller trees that have not been selectively logged still occur, including several emergent *Ceiba pentandra* and *Cavanillesia platanifolia*.

Climate at Rancho Frío station is reminiscent of a humid tropical forest and is marked by two seasons, dry (January–April) and wet (May–December). Mean annual temperature fluctuates around 22–25°C with mean annual rainfall of >2,500 mm (Dalfelt & Morales 1978). The foothills and higher elevations experience more precipitation and increased cloud cover (Gradstein & Salazar-Allen 1992). We recorded rain on fewer than ten of 36 days.

From the station, two main trails ascend into SDP. The most utilised trail, the Rancho Frío–Cerro Pirre trail, climbs south to 1,550 m on the highest peak of Cerro Pirre (Robbins *et al.* 1985). We reached a max. elevation of 650 m. The second, the Antenna trail ascends the northernmost SDP. We reached 600 m elevation here. Forest structure in the lower foothills (c.90–650 m) is markedly distinct from the surrounding lowlands: foothill forest includes an open understorey and mean canopy height of 20–25 m. Flanking both trails is a series of steep gullies carved out by small streams (c.3 m in width).

Methods

On 20–22 April 2014, JPH, C. Hruska & S. Gladstone visited the environs of Rancho Frío station and the northern SDP. The area was revisited and surveyed by the authors on 4 June–8 July 2014. The avifauna was surveyed primarily via the two aforementioned trails, with additional opportunistic observations on the El Real–Rancho Frío trail. Additionally, we also surveyed the steep gullies along the Rancho Frío–Cerro Pirre and Antenna trails. Total survey effort comprised 336 observational hours and 70 mist-net hours. We mist-netted at six locations, at 123 m, 156 m, 176 m, 213 m, 291 m and 300 m elevation. With the exception of that at 300 m, all mist-netting sites were beside forested streams. We used ten mist-nets (12 × 2.6 m; 32–36 mm mesh) and checked open nets every 30 minutes. We made audio-recordings using a MKH 20 microphone and Telinga 55.6 cm parabola. We also captured video with Canon EOS 7D and 5D Mark II cameras fitted to 400 mm, 500 mm and 100–400 mm lenses. Records from the 20–22 April scouting trip are not included in the overall list of species (Appendix 1), but an observation of Double-banded Greytail *Xenerpestes minlosi* is mentioned in the species accounts. Taxonomy follows the American Ornithologists’ Union (<http://checklist.aou.org/taxa/>).

We collected specimens of three species: Crested Owl *Lophotrix cristata*, Streak-chested Antpitta *Hylopezus perspicillatus* and Sapayoa *Sapayoa aenigma*. These are deposited at the Cornell University Museum of Vertebrates, Ithaca, NY (CUMV) and Museo de Vertebrados of the Universidad de Panamá, Panama City (MVUP). Audio and video-recordings are archived at the Macaulay Library of Natural Sounds (ML, <http://macaulaylibrary.org>) of the Cornell Lab of Ornithology. All work was conducted in accordance with research permits

TABLE 1
Coordinates and survey effort at mist-netting localities.

Elevation	Coordinates	Hours
c.300 m	08°00'57.708"N, 77°43'0.588"W	8
c.125 m	08°00'50.388"N, 77°43'38.96"W	20
c.215 m	08°00'48.744"N, 77°43'34.50"W	8
c.175 m	08°00'53.010"N, 77°43'28.34"W	20
c.290 m	08°00'32.364"N, 77°43'15.20"W	8
c.155 m	08°00'48.527"N, 77°43'40.40"W	6

(#SE/A-54-14) and IACUC protocols (#2014-0601-2017-5) issued by the Autoridad Nacional del Ambiente (ANAM) and Smithsonian Tropical Research Institute (STRI).

Results

We encountered a total of 219 species of 43 families in the vicinity of Rancho Frío and the towns of El Real, Yaviza, and Pirre Uno (Appendix 1). Of these, seven species are currently classified as Near Threatened, three as Vulnerable and one as Endangered. We present observations of 19 species.

Species accounts

KING VULTURE *Sarcoramphus papa*

Our only observation was on 12 June (at c.120 m), when we observed a juvenile and adult c.12 m above the forest floor. Wetmore (1965) noted that *S. papa* was ‘found in small numbers’, and Ridgely & Gwynne (1989) listed it as locally uncommon to fairly common in Panama. We observed the juvenile for several minutes, during which it begged for food by pinching and nudging the adult’s bill. Despite being a widespread and relatively common species across the Neotropics, only a few nests have been described, and breeding biology remains poorly understood (Carvalho Filho *et al.* 2004). *S. papa* is presumed to breed every two years and little is known concerning parent–offspring dynamics during the dependence period of at least one year (Clinton-Eitnien 1986). Our observation suggests that young are fed by adults post-fledging.

PLUMBEOUS KITE *Ictinia plumbea*

On 16 June, we found a group of four (three adults and a juvenile) on the El Real–Rancho Frío trail, c.2 km from Rancho Frío station. The juvenile gave begging calls and was fed by an adult. Migratory in the northern and southern parts of its range, status and distribution in Panama is poorly known (Seavy *et al.* 1998); several migratory and resident populations may be involved. Surprisingly, very few data on breeding are available from Panama. Other than a male collected at Cana in breeding condition (Griscom 1929) during the ‘spring and summer’, no other published information exists (Wetmore 1965, Ridgely & Gwynne 1989, Bierregaard *et al.* 2016).

RED-THROATED CARACARA *Ibycter americanus*

We routinely encountered several (typically 3–4) individuals on the Rancho Frío–Cerro Pirre trail; they were frequently heard calling early morning and late afternoon. The species’ presence in SDP had been noted previously (Wetmore 1965, Angehr *et al.* 2008), but continued monitoring is important, given the declines it has suffered since the 1950s and 1960s (Bierregaard 1994, Ferguson-Lees & Christie 2001, Narish & Jenner 2004). In Panama, *I. americanus* was formerly considered locally common on the Caribbean slope, where it has apparently been extirpated at some localities (Wetmore 1965, Ridgely & Gwynne 1989). Although not considered globally threatened as some populations remain robust (e.g., in Amazonia), elsewhere in Central and South America there have been precipitous declines (Ferguson-Lees & Christie 2001). The causes of these are unknown, but they do not appear to be associated with habitat loss (Ridgely & Gwynne 1989). Video (ML 515063) and audio (e.g., ML 514918) recordings have been archived.

CRESTED EAGLE *Morphnus guianensis*

On 9 June we visited a nest (at c.145 m) on the Antenna trail. It was c.20 m above ground in the fork of a large tree (Fabaceae). We observed a fledged juvenile (video ML 476245-7, 476235-8, 477357, 515047-8). Of note is the proximity of this nest (1.1 km) to a nest of Harpy Eagle *Harpia harpyja*. Territories of *M. guianensis*, estimated to be up to 25 km² (Whitacre *et al.* 2013), are often considered to be non-overlapping with those of *H. harpyja* (Thiollay 1989). In some areas, however, such as Pará in east Amazonian Brazil and southern Venezuela, this appears not to be the case (Crease & Tepedino 2013). We assume that the territories in Panama were overlapping, given the nests' proximity. In eastern Ecuador, *M. guianensis* has nested within 3 km of two *H. harpyja* nests (Vargas *et al.* 2006). Furthermore, an adult *M. guianensis* has been documented feeding a post-fledged *H. harpyja* in Panama (Vargas *et al.* 2006), suggesting that more remains to be learned concerning interactions between the two species. On 20 June, we observed a dark-morph adult *M. guianensis* c.1.5 km (at 175 m) from the station, on the Rancho Frío–Cerro Pirre trail. It was perched on a narrow midstorey branch, c.3 m above ground, where it remained for c.1 hour. On the ground nearby was a swarm of *Eciton burchellii* army ants. *M. guianensis* has been observed soaring c.200 m above ground and assuming high perches (Pearman 2001), but reports of birds perching in the subcanopy for long periods are rare. Video is archived at ML (ML 476270, 476279-86, 477351-4).

RUDDY QUAIL-DOVE *Geotrygon montana*

On 14 June, we found a nest (at c.175 m) on a stream bank (Fig. 2). Approximately 0.5 m above ground, the nest was a platform of loosely assembled sticks and fibres placed atop an unidentified plant. We observed a male incubating for c.30 minutes. After it departed, we found two whitish eggs. On 15 June, the nest was revisited, when the male was brooding



Figure 2. Ruddy Quail-Dove *Geotrygon montana* nestlings and nest, Darién National Park, Panama, 15 June 2014 (Benjamin M. Van Doren)

two nestlings, which had pinkish skin sparsely covered in blond down. This supports other observations of males incubating by day and females by night (Skutch 1949, Wetmore 1968). On 17 June, the nestlings were gone, presumably having been predated. Despite being relatively common and widespread in Panama, few nests have been described there (Wetmore 1968, Ridgely & Gwynne 1989).

SAFFRON-HEADED PARROT *Pyrilia pyrilia*

On 22 June, we found a group of three (at c.315 m) in the upper canopy along the Antenna trail, and made the first sound-recordings of the species in Panama (ML 186874). *P. pyrilia* is considered Near Threatened due to extensive habitat loss throughout its limited range in Panama, Colombia and Venezuela (Snyder 2000). Around Cerro Pirre, Robbins *et al.* (1985) noted that *P. pyrilia* was 'encountered infrequently' up to 1,400 m, with the largest flock of ten. Originally suggested to have a 'temporary' presence in eastern Panama (Haffer 1975), Ridgely & Gwynne (1989) stated that it is uncommon in the lowlands and lower foothills of eastern Darién, whereas Wetmore (1968) commented that the species' status was uncertain, being then known from just two records on the lower Tuira in Darién. No single eBird observation in Panama involves more than five individuals.

RED-AND-GREEN MACAW *Ara chloropterus*

On 12 June, we found two (at c.290 m) feeding on palm (Arecaceae) fruits, c.5 m above ground on the Antenna trail. *A. chloropterus* was the most frequently encountered *Ara* in SDP. Most sightings involved 2–3 individuals, with one record of six birds. Our sighting on 12 June was the only observation of the species feeding. Wetmore (1968) noted that *A. chloropterus* occurs locally in eastern Panama, potentially as far west as the Canal Zone. Currently, it is an uncommon and local resident (Ridgely & Gwynne 1989). Around Cerro Pirre, Robbins *et al.* (1985) noted that *A. chloropterus* was the 'commonest *Ara*', with records of up to 12 individuals. However, recent sightings in SDP have not exceeded eight, suggesting a decline (eBird 2016). Still considered common in the south of its range in South America, *A. chloropterus* has been extirpated locally across much of the north and north-west of its range, including Panama, due to intense pressure from the pet trade and habitat loss (Hilty 2003).

LONG-BILLED HERMIT *Phaethornis longirostris*

We found a nest (at c.100 m) containing two nestlings along a stream around Rancho Frío station on 5 June, c.1.25 m above ground. The nestlings had black skin with a few downy feathers. The nest was cup-shaped and attached by fibrous strands to the leaf of a small palm (Arecaceae: *Calypptogyne*). Nest materials included fine twigs and moss. Previous nests have been also attached to *Calypptogyne*, suggesting that *P. longirostris* favours this palm (Skutch 1964). *P. longirostris* is considered one of the commonest hummingbirds in Panama (Wetmore 1968, Ridgely & Gwynne 1989).

TODY MOTMOT *Hylomanes momotula*

On 19 June, we found two (at c.130 m) attending an *Eciton burchellii* ant swarm. They were perched motionless during the observation. Although we did not observe them foraging, their presence suggests that *H. momotula* attends ant swarms opportunistically. Other Momotidae have also been observed attending ant swarms (Willis 1981, Willis *et al.* 1982). Little is known concerning the species' foraging ecology, although stomach contents (Wetmore 1968, Remsen *et al.* 1993) and observations (Stiles & Skutch 1989) suggest that it is entirely insectivorous, unlike the preferences of most motmots, which favour a more

varied diet (Remsen *et al.* 1993). Angehr *et al.* (2008) reported the presence of *H. momotula* in this region, although it was previously thought to be absent east of San Blas (Ridgely & Gwynne 1989).

GREY-CHEEKED NUNLET *Nonnula frontalis*

On 15 June, we encountered a group of three (c.90 m) on the El Real–Rancho Frío trail. They were perched c.5 m above ground in a dense vine tangle, and were expanding and contracting their breast feathers (ML 515088). Angehr *et al.* (2008) noted the species' presence around El Real and Pirre station. This was our only record; its presence is of note given recent local extirpations, e.g. it was formerly known from central Panama but has not been recorded there since 1985 (Wetmore 1968, Willis & Eisenmann 1979, Robinson *et al.* 2004, eBird 2016). The subspecies that occurs from central Panama to extreme north-west Colombia is *N. f. stulta* (Wetmore 1953). Formerly found as far west as Coclé province, it now appears to be confined to local pockets in the Darién, eastern Panamá province and the Comarca Emberá-Wounaan (Angehr *et al.* 2006a, eBird 2016). Considered uncommon in Darién by Ridgely & Gwynne (1989) and local by Wetmore (1968), this appears to still hold true (eBird 2016).

SPOT-CROWNED BARBET *Capito maculicoronatus*

On 30 June, we observed one (at c.290 m) excavating a cavity in a 5 m-high, severely rotten tree. The tree was at the edge of a small clearing, with the cavity c.0.5 m from the top. The cavity was apparently in the later stages of excavation because it was sufficiently large to accommodate nearly the entire bird. The observation is of note given how few published data are available concerning the species' breeding biology. In Colombia birds have been found in breeding condition in December–April and June (Short & Horne 2011), with nest excavation observed in March (Hilty & Brown 1986). In Panama, individuals in breeding condition have been found in January–March and July, with fledged young observed in early June (Short & Horne 2001).

DOUBLE-BANDED GREYTAIL

Xenerpestes minlosi

We observed one in a heavily deforested area in the town of Pirre Uno on 24 April, exiting and re-entering a nest (Fig. 3), c.4 m above ground, primarily comprising twigs and sticks c.25 cm in length, and sited in the fork of an entirely defoliated tree. The nest's structure and its placement in a defoliated tree is repeated in Pink-legged Graveteiro *Acrobatornis fonsecai*, a putative relative of *X. minlosi* (Whitney *et al.* 1996, Remsen 2003). The tree contained another apparently unoccupied nest, similar in structure and materials. Whether the unoccupied nest had been utilised during a previous breeding



Figure 3. Double-banded Greytail *Xenerpestes minlosi* nest, Pirre Uno, Panama, 24 April 2014 (Jack Hruska)

attempt or was a 'dummy' is unknown. Previously, a stick nest found at Cana was believed to possibly belong to *X. minlosi*, but this was not confirmed (Ridgely & Gwynne 1989). Recent video and photographs by V. Wilson in Reserva Arimae, Darién, have confirmed that *X. minlosi* does build stick nests (<https://vimeo.com/19959759>). On 16 June, we revisited Pirre Uno and used playback of the species' song; one individual approached to within a few metres and vocalised aggressively. Our record provides another nesting locality for this poorly known species and suggests that territories are occupied for extended periods.

LONG-TAILED WOODCREEPER *Deconychura longicauda*

On 21 June, we captured one at c.175 m. We colour-banded the bird and took several measurements. It had a mass of 25.3 g, with tarsus, wing chord and head to bill lengths of 20.5 mm, 105.0 mm and 45.0 mm, respectively. The same bird was re-sighted on 1 July at c.250 m, and a linear distance of c.900 m from its original location. *D. longicauda* has a propensity to disperse over large elevational gradients and has been recorded from near sea level in Costa Rica to c.1,050 m in Darién (McDade 1994). *D. longicauda* is suspected to be less tolerant of disturbance than other Dendrocolaptidae, apparently requiring large tracts of continuous forest (Stouffer & Bierregaard 1995). In Peru, mean territory size is 16 ha (Servat *et al.* 1996) while density at one site in Panama was c.5 pairs / 100 ha (Hespenheide 1980). The species' presence at this location is significant given its poorly understood status in Central America, where it is very local. In Chiriquí, Panama, it was thought to have been extirpated, but recent records from the Chiriquí Highlands and Burica Peninsula confirm its persistence (Ridgely & Gwynne 1989, eBird 2016). The subspecies around El Real and Pirre station, *D. l. dariensis*, is range-restricted (in eastern Panama and north-west Colombia) and considered rare (Angehr *et al.* 2008, Wetmore 1972).

SAPAYOA *Sapayoa aenigma*

Originally described as a Pipridae, recent molecular studies have confirmed *S. aenigma* as very closely related to the Old World suboscines (Chesser 2004, Irestedt *et al.* 2006, Moyle *et al.* 2006). Until recently, very little was known of its natural history (Kirwan & Green 2011). The first description of the nest, nestlings and parental behaviour was published by Christian (2001). Dzielski *et al.* (2016) provided an in-depth account of the breeding and social dynamics of *S. aenigma*. Wetmore (1975) described it as local from the Canal Zone east to the Darién, and Ridgely & Gwynne (1989) suggested it was uncommon to rare. The lack of recent documented records from the Canal Zone (Pipeline Road) might indicate that the species has been locally extirpated (eBird 2016). Angehr *et al.* (2008) confirmed its presence in SDP.

Foraging.—*S. aenigma* has been traditionally considered to be mostly insectivorous and partially frugivorous, and a regular participant in mixed-species flocks. It has been noted to 'perch and sally' for prey (Ridgely & Gwynne 1989). Here we report observations of its foraging ecology, with more detailed notes on prey and the species composition of the mixed flocks they attend. We observed both individuals and groups with mixed-species flocks. On 13 June, a male was feeding with a mixed flock that was moving through its territory, but did not follow the flock after it had left the territory. On 14 June, a family group of four was attending a mixed-species flock. On 15 June, a group of at least two attended a mixed-species foraging flock, comprising lower and midstorey species such as Tawny-crowned Greenlet *Tunchiornis ochraceiceps*, Lesser Greenlet *Pachysylvia decurtata*, Dull-mantled Antbird *Myrmeciza laemosticta*, Chestnut-backed Antbird *M. exsul*, Wedge-billed Woodcreeper *Glyphorynchus spirurus*, Cocoa Woodcreeper *Xiphorhynchus susurrans*, Checker-throated Antwren *Epinecrophylla fulviventris*, Rufous Piha *Lipaugus*

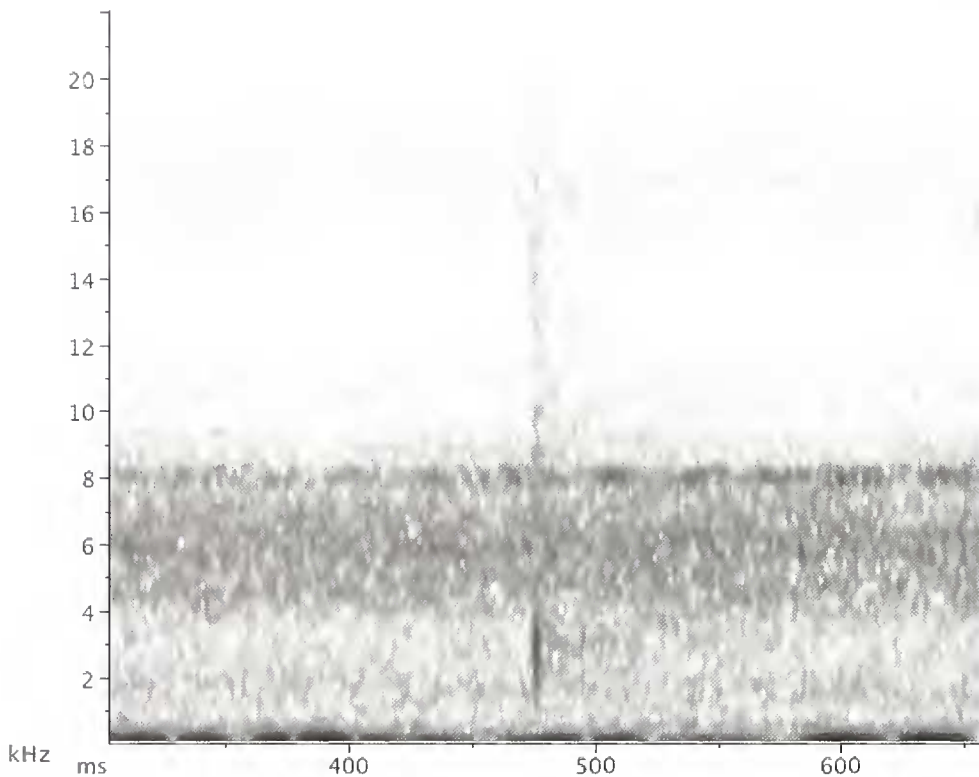


Figure 4. Sapayoa *Sapayoa aenigma* sonation, recorded 8 June 2014, Serranía de Pirre, Panama; sonogram produced using Raven software from recording ML 186853 (<http://macaulaylibrary.org/audio/186853>) by Sarah Dzielski.

unirufus, Slaty-winged Foliage-gleaner *Philydor fuscipenne*, Lemon-spectacled Tanager *Chlorothraupis olivacea*, Pacific Antwren *Myrmotherula pacifica*, Moustached Antwren *M. ignota*, White-flanked Antwren *M. axillaris*, Dot-winged Antwren *Microrhophias quixensis* and Buff-throated Foliage-gleaner *Automolus ochrolaemus*. We observed many fly-catching manoeuvres, including steep diving sallies from perches, but never definitely observed fruit consumption. Although some authors (Hilty & Brown 1986, Snow 2004) have stated that Sapayoa feeds on fruit and insects, our observations suggest the species is predominately insectivorous. Identified prey were few, although we did observe a male on 22 April take a wasp (Hymenoptera). Furthermore, we observed moths, butterflies (Lepidoptera) and katydids (Orthoptera) being delivered to nestlings and sometimes consumed (Dzielski *et al.* 2016).

Sonation.—On 8 June we encountered a male at c.170 m on the Rancho Frío–Cerro Pirre trail and obtained audio and video recordings. We used playback to locate it. One of the recordings (ML 186853) captured a sonation, or non-vocal acoustic signal (Bostwick 2006), produced either by wing- or bill-snaps. At 4:17 minutes, the bird emits a dull, mechanical ‘snap’ followed by a couple of short notes and a wing flutter. A sonogram (Fig. 4) reveals that the frequency of the sound ranges from c.1 to 22 kHz, with a duration of <0.01 seconds. This is the first recording of sonation in *S. aenigma*. Common in New World suboscines, especially Tyrannidae (Bostwick & Zyskowski 2001), non-vocal sounds have been increasingly documented in Old World suboscines, especially Calyptomenidae and Philepittidae (Lambert & Woodcock 1996). Additionally, African Pitta *Pitta angolensis*, Green-breasted Pitta *P. reichenowi*, Black-crowned (Garnet) Pitta *P. (grauatina) ussheri* and Eared Pitta *P. phayrei* have all been recorded making sonations during flight and displays (Chapin 1953, Round 2002, Pegan *et al.* 2013). The mechanics of this non-vocal sound in *S. aenigma* are unknown.

BLUE-CROWNED MANAKIN *Lepidothrix coronata*

We found a nest at c.290 m on 18 June, c.1.5 m above ground in the fork of a tree. The female was incubating two eggs. Despite being well known, this is the first published nesting data for *L. c. minuscula* in Panama (Kirwan & Green 2011). The nest was similar in appearance and placement to other described nests of *L. coronata* (Skutch 1969, Wetmore 1972, Hidalgo *et al.* 2008).

BLACK-TIPPED COTINGA *Carpodectes hopkei*

On 1 July a male was seen on the Antenna trail at c.300 m, our only observation. The northern SDP and Cerro Sapo (on the Pacific slope) are the northernmost known localities for this Chocó endemic (Ridgely & Gwynne 1989). Like congeners, it is poorly known and its nest undescribed (Kirwan & Green 2011). Only two recordings of its vocalisations exist (XC290028, 289689). In SDP, the status of *C. hopkei* is poorly known. Considered by Wetmore (1972) as fairly common at 300–600 m on Cerro Nique, Kirwan & Green (2011) suggested that it was at least formerly fairly common on Cerro Pirre as well, while also noting that it is tolerably common below 600 m in Panamanian Darién. All five published reports in the El Real–Rancho Frío area are apparently recent, since 2008 (Angehr *et al.* 2008, eBird 2016). Once considered Near Threatened, it is now classed as Least Concern. Continued habitat destruction in the Chocó could warrant a reconsideration of its conservation status (Snow 2004).

BLACK-CAPPED PYGMY TYRANT *Myiornis atricapillus*

On 15 June, in a forest clearing adjacent to Rancho Frío station (c.90 m), we found a male constructing a nest. Listed as uncommon on the Darién Pacific slope (Wetmore 1972) and notably absent from SDP (Angehr *et al.* 2008), *M. atricapillus* has been regularly found around Rancho Frío station (eBird 2016). The nest, dome-shaped with a rounded base, was suspended c.4 m above ground from a narrow branch and primarily comprised mosses and fine twigs. Despite being relatively common, few data concerning its breeding biology have been published (Clock 2004). Eggs have been reported in late March in Panama (Wetmore 1972) and mid April in Costa Rica (Stiles & Skutch 1989). Our observation indicates that the breeding season, at least in Panama, is more prolonged than was thought (Wetmore 1972, Stiles & Skutch 1989). Wetmore (1975) reported that a nest with two eggs was visited only by the female, but our observations indicate that males participate in nest construction at least.

OLIVACEOUS FLATBILL *Rhynchocyclus olivaceus*

We found several active and inactive nests around Rancho Frío station. Several were initially assigned incorrectly to *Sapayoa aenimiga*, whose nest architecture and composition is similar. Nests of both species are described as ‘pear-shaped’, with a tapered top, and are suspended from a drooping branch (Ridgely & Gwynne 1989, Christian 2001). An active nest of *R. olivaceus* was found on 10 June, confirming our previous identifications as incorrect. Nests of *R. olivaceus* appeared more ragged and disheveled, with a less rounded base, and were also segregated by habitat from those of *S. aenimiga*, which were exclusively sited above streams in deep ravines. *R. olivaceus* nests were never found over streams, but often were on the tops of ridges, especially along trails (Dzielski *et al.* 2016). Two congeners, Fulvous-breasted Flatbill *R. fulvipectus* and Eye-ringed Flatbill *R. brevirostris*, do nest above streams (Stiles & Skutch 1989, Greeney *et al.* 2004), but this tendency has not been documented in *R. olivaceus* (Todd & Carriker 1922, Skutch 1960).

SLATE-THROATED GNATCATCHER *Poliophtila schistaceigula*

On 7 June we observed an adult (at c.90 m) and two fledglings in a *Cecropia* at the edge of a clearing adjacent to Rancho Frío station. We identified the fledglings by plumage, with prominent downy feathers on their flanks. Ours is the first published observation of a fledgling (Atwood & Lerman 2006). The population in eastern Panama and western Colombia has been speculated to represent an undescribed race, and it has been suggested that the species should be considered Near Threatened (Atwood & Lerman 2006).

Discussion

Despite having received considerable attention from ornithologists (Goldman 1920, Griscom 1929, Wetmore 1965, 1968, 1972, Wetmore *et al.* 1984, Robbins *et al.* 1985), the natural history of avifauna in SDP is poorly known. Here we highlight unusual behaviours, nest records, and records of declining and range-restricted species. In particular, we focused our efforts on Sapayoa *Sapayoa aenigma*, a particularly enigmatic species.

We encourage more studies of the avifauna of DNP, especially in its foothills and lowlands. The area around Rancho Frío station is an ideal location to study several uncommon species, e.g. *Ibycter americanus* and *Nonnula frontalis*, and others sensitive to habitat perturbation, such as *Harpia harpyja* and *Morphnus guianensis*. Included within the Darién Lowlands EBA, the area is assigned 'critical' priority designation by BirdLife International and is considered of the highest biological importance (Stattersfield *et al.* 1998). Not only is the habitat threatened by rapidly expanding agriculture and cattle ranching, it supports a unique avifaunal community that is severely under-studied and of significant ecotourism value. We trust that our efforts, in conjunction with others of its kind, will expand our knowledge of this threatened region's biodiversity.

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Appendix 1

List of species encountered in the northern Serranía de Pirre, Panama. Most surveys were conducted in the Rancho Frío vicinity, with opportunistic observations along the Tuira River and El Real–Rancho Frío road. Documentation: SP = specimen; P = photograph; R = sound-recording; V = video-recording; SH = seen or heard only. Global conservation status categories (in brackets): E = Endangered; VU = Vulnerable; NT = Near Threatened.

English name	Scientific name	Tuira River	Rancho Frío	El Real–Rancho Frío	Documentation
TINAMIDAE					
Little Tinamou	<i>Crypturellus soui</i>		x	x	SH
Great Tinamou (NT)	<i>Tinamus major</i>		x	x	SH
CRACIDAE					
Great Curassow (VU)	<i>Crax rubra</i>		x		SH
ODONTOPHORIDAE					
Marbled Wood Quail (NT)	<i>Odontophorus gujanensis</i>		x		SH
CICONIIDAE					
Wood Stork	<i>Mycteria americana</i>	x			SH
PHALACROCORACIDAE					
Neotropic Cormorant	<i>Phalacrocorax brasilianus</i>	x			SH
ARDEIDAE					
Rufescent Tiger Heron	<i>Tigrisoma lineatum</i>		x	x	SH
Great Blue Heron	<i>Ardea herodias</i>	x			SH
Cocoi Heron	<i>Ardea cocoi</i>	x			SH
Little Blue Heron	<i>Egretta caerulea</i>	x			SH
Green Heron	<i>Butorides virescens</i>	x			SH
CATHARTIDAE					
Black Vulture	<i>Coragyps atratus</i>	x	x	x	SH
Turkey Vulture	<i>Cathartes aura</i>	x	x	x	SH
King Vulture	<i>Sarcorampus papa</i>		x	x	P,V,SH
ACCIPITRIDAE					
Swallow-tailed Kite	<i>Elanoides forficatus</i>		x	x	P, V, SH
Crested Eagle (NT)	<i>Morphnus guianensis</i>		x		P, V, SH
Harpy Eagle (NT)	<i>Harpia harpyja</i>		x		P, V, SH
Black Hawk-Eagle	<i>Spizaetus tyrannus</i>		x	x	P, V, SH
Ornate Hawk-Eagle (NT)	<i>Spizaetus ornatus</i>		x		SH
Plumbeous Kite	<i>Ictinia plumbea</i>		x		SH
Plumbeous Hawk (VU)	<i>Cryptoleucopteryx plumbea</i>		x		P, V, SH
Great Black Hawk	<i>Buteogallus urubitinga</i>	x	x	x	P, V, SH
Roadside Hawk	<i>Rupornis magnirostris</i>		x	x	SH
White Hawk	<i>Pseudastur albicollis</i>		x		P, V, SH
Semiplumbeous Hawk	<i>Leucopternis semiplumbeus</i>		x		P, V, SH
EURYPYGIDAE					
Sunbittern	<i>Eurypyga helias</i>		x		P, SH
COLUMBIDAE					
Pale-vented Pigeon	<i>Patagioenas cayennensis</i>		x	x	SH
Plumbeous Pigeon	<i>Patagioenas plumbea</i>		x		SH
Ruddy Pigeon (VU)	<i>Patagioenas subvinacea</i>		x		SH
Plain-breasted Ground Dove	<i>Columbina minuta</i>	x			SH

English name	Scientific name	Tuira River	Rancho Frio	El Real- Rancho Frio	Documentation
Blue Ground Dove	<i>Claravis pretiosa</i>		x		SH
Ruddy Quail-Dove	<i>Geotrygon montana</i>		x		P, V, SH
Violaceous Quail-Dove	<i>Geotrygon violacea</i>		x		SH
Olive-backed Quail-Dove	<i>Leptotrygon veraguensis</i>		x		SH
Grey-chested Dove	<i>Leptotila cassinii</i>		x		SH
CUCULIDAE					
Squirrel Cuckoo	<i>Piaya cayana</i>		x	x	SH
Striped Cuckoo	<i>Tapera naevia</i>	x			SH
Greater Ani	<i>Crotophaga major</i>	x		x	SH
Smooth-billed Ani	<i>Crotophaga ani</i>	x			SH
STRIGIDAE					
Vermiculated Screech Owl	<i>Megascops guatemalae</i>		x		SH
Crested Owl	<i>Lophotrix cristata</i>		x		SP, SH
Spectacled Owl	<i>Pulsatrix perspicillata</i>		x		P, SH
Central American Pygmy Owl	<i>Glaucidium griseiceps</i>		x		SH
CAPRIMULGIDAE					
Short-tailed Nighthawk	<i>Lurocalis semitorquatus</i>		x		SH
APODIDAE					
White-collared Swift	<i>Streptoprocne zonaris</i>		x	x	SH
Band-rumped Swift	<i>Chaetura spinicaudus</i>		x	x	SH
Short-tailed Swift	<i>Chaetura brachyura</i>		x	x	SH
TROCHILIDAE					
White-tipped Sicklebill	<i>Eutoxeres aquila</i>		x		P, V, SH
Band-tailed Barbthroat	<i>Threnetes ruckeri</i>		x		SH
Long-billed Hermit	<i>Phaethornis longirostris</i>		x	x	P, V, SH
Pale-bellied Hermit	<i>Phaethornis anthophilus</i>			x	SH
Stripe-throated Hermit	<i>Phaethornis striigularis</i>		x	x	SH
Tooth-billed Hummingbird	<i>Androdon aequatorialis</i>		x		SH
Black-throated Mango	<i>Anthracothonax uigricollis</i>			x	SH
Crowned Woodnymph	<i>Thalurania colombica</i>		x		SH
Violet-bellied Hummingbird	<i>Damophila julie</i>		x		SH
Violet-headed Hummingbird	<i>Klais guimeti</i>		x		SH
Green Thorntail	<i>Discosura conversii</i>		x		SH
White-vented Plumeleteer	<i>Chalybura buffoni</i>		x		SH
Purple-crowned Fairy	<i>Heliothlyx barroti</i>		x		SH
TROGONIDAE					
Slaty-tailed Trogon	<i>Trogon massena</i>		x	x	SH
Black-tailed Trogon	<i>Trogon melanurus</i>		x		SH
White-tailed Trogon	<i>Trogon chionurus</i>		x		SH
Gartered Trogon	<i>Trogon caligatus</i>		x	x	SH
Black-throated Trogon	<i>Trogon rufus</i>		x		SH
MOMOTIDAE					
Tody Motmot	<i>Hylomanes momotula</i>		x		P, SH
Blue-crowned Motmot	<i>Momotus momota</i>		x	x	SH
Rufous Motmot	<i>Baryphtheugus martii</i>		x		SH

English name	Scientific name	Tuira River	Rancho Frio	El Real-Rancho Frio	Documentation
Broad-billed Motmot	<i>Electron platyrhynchum</i>		x		SH
ALCEDINIDAE					
Amazon Kingfisher	<i>Chloroceryle amazona</i>	x	x	x	SH
Green Kingfisher	<i>Chloroceryle americana</i>	x	x		SH
BUCCONIDAE					
White-necked Puffbird	<i>Notharchus hyperrhynchus</i>		x	x	SH
Black-breasted Puffbird	<i>Notharchus pectoralis</i>		x		SH
Pied Puffbird	<i>Notharchus tectus</i>		x		P, V, SH
Barred Puffbird	<i>Nystalus radiatus</i>		x		SH
White-whiskered Puffbird	<i>Malacoptila panamensis</i>		x		SH
Grey-cheeked Nunlet	<i>Nonnula frontalis</i>		x	x	P, V, SH
White-fronted Nunbird	<i>Monasa morphoens</i>		x		P, V, SH
GALBULIDAE					
Great Jacamar	<i>Jacamerops aurcus</i>		x	x	P, V, SH
Rufous-tailed Jacamar	<i>Galbula ruficauda</i>			x	SH
CAPITONIDAE					
Spot-crowned Barbet	<i>Capito maculicoronatus</i>		x		P, V, SH
RAMPHASTIDAE					
Collared Aracari	<i>Pteroglossus torquatus</i>		x	x	SH
Yellow-eared Toucanet	<i>Selenidera spectabilis</i>		x		SH
Black-mandibled Toucan	<i>Ramphastos ambiguus</i>		x	x	SH
Keel-billed Toucan	<i>Ramphastos sulfuratus</i>		x	x	SH
PICIDAE					
Olivaceous Piculet	<i>Picumnus olivaceus</i>		x		SH
Black-cheeked Woodpecker	<i>Melanerpes pucherani</i>		x	x	SH
Red-crowned Woodpecker	<i>Melanerpes rubricapillus</i>		x	x	SH
Spot-breasted Woodpecker	<i>Colaptes punctigula</i>	x			SH
Cinnamon Woodpecker	<i>Celex loricatus</i>		x		SH
Lineated Woodpecker	<i>Dryocopus lineatus</i>		x	x	SH
Crimson-bellied Woodpecker	<i>Campephilus haematogaster</i>		x		SH
Crimson-crested Woodpecker	<i>Campephilus melanoleucos</i>		x		SH
FALCONIDAE					
Slaty-backed Forest Falcon	<i>Micrastur mirandollei</i>		x		SH
Collared Forest Falcon	<i>Micrastur semitorquatus</i>		x		SH
Red-throated Caracara	<i>Ibycter americanus</i>		x		P, V, SH
Laughing Falcon	<i>Herpetotheres cachinnans</i>		x	x	SH
American Kestrel	<i>Falco sparverius</i>			x	SH
Bat Falcon	<i>Falco rufigularis</i>		x		SH
PSITTACIDAE					
Orange-chinned Parakeet	<i>Brotogeris jugularis</i>	x	x	x	SH
Brown-hooded Parrot	<i>Pyrrhula haematotis</i>		x		SH
Saffron-headed Parrot (NT)	<i>Pyrrhula pyrrhula</i>		x		
Blue-headed Parrot	<i>Pionus menstruus</i>		x		P, SH, R
Red-lored Parrot	<i>Amazona autumnalis</i>		x		SH
Mealy Parrot (NT)	<i>Amazona farinosa</i>		x		SH

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Spectacled Parrotlet	<i>Forpus conspicillatus</i>	x		x	SH
Great Green Macaw (EN)	<i>Ara ambiguus</i>		x		SH
Blue-and-yellow Macaw	<i>Ara ararauna</i>		x		SH
Red-and-green Macaw	<i>Ara chloropterus</i>		x		P, V, SH
SAPAYOAIDAE					
Sapayoa	<i>Sapayoa aenigma</i>		x		SP, P, V, SH, R
THAMNOPHILIDAE					
Black-crowned Antshrike	<i>Thamnophilus atrinucha</i>		x		SH
Russet Antshrike	<i>Thamnistes anabatinus</i>		x		SH
Spot-crowned Antvireo	<i>Dysithamnus puncticeps</i>		x		SH
Plain Antvireo	<i>Dysithamnus mentalis</i>		x		SH
Checker-throated Antwren	<i>Epinecrophylla fulviventris</i>		x		SH
Pacific Antwren	<i>Myrmotherula pacifica</i>		x		SH
Moustached Antwren	<i>Myrmotherula ignota</i>		x		SH
White-flanked Antwren	<i>Myrmotherula axillaris</i>		x	x	SH
Dot-winged Antwren	<i>Microrhophias quixensis</i>		x	x	SH
Dusky Antbird	<i>Cercomacra tyrannina</i>		x	x	SH
Chestnut-backed Antbird	<i>Myrmeciza exsul</i>		x	x	SH, R
Dull-mantled Antbird	<i>Myrmeciza laemosticta</i>		x		P, SH, R
Wing-banded Antbird	<i>Myrmornias torquata</i>		x		P, SH, R
Bicoloured Antbird	<i>Gymnopithys bicolor</i>		x		SH
Spotted Antbird	<i>Hylophylax naevioides</i>		x	x	SH
Ocellated Antbird	<i>Phaenostictus mcleannani</i>		x		P, SH
CONOPOPHAGIDAE					
Black-crowned Antpitta	<i>Pittasoma michleri</i>		x		P, V, SH, R
GRALLARIDAE					
Streak-chested Antpitta	<i>Hylopezus perspicillatus</i>		x	x	SP, P, V, SH, R
FORMICARIIDAE					
Black-faced Antthrush	<i>Formicarius analis</i>		x	x	SH
FURNARIIDAE					
Scaly-throated Leaftosser	<i>Sclerurus guatemalensis</i>		x		SH
Long-tailed Woodcreeper	<i>Deconychura longicauda</i>		x		SH
Plain-brown Woodcreeper	<i>Dendrocincla fuliginosa</i>		x	x	SH
Wedge-billed Woodcreeper	<i>Glyphorhynchus spirurus</i>		x	x	SH
Northern Barred Woodcreeper	<i>Dendrocolaptes sanctithomae</i>		x	x	SH
Cocoa Woodcreeper	<i>Xiphorhynchus susurraus</i>		x	x	SH
Black-striped Woodcreeper	<i>Xiphorhynchus lachrymosus</i>		x		SH
Streak-headed Woodcreeper	<i>Lepidocolaptes souleyetii</i>		x	x	SH
Plain Xenops	<i>Xenops minutus</i>		x	x	SH
Slaty-winged Foliage-gleaner	<i>Philydor fuscipenne</i>		x		P, SH, R
Buff-throated Foliage-gleaner	<i>Automolus ochrolaemus</i>		x		SH
Double-banded Greytail	<i>Xenerpestes inulsi</i>		x	x	P, V, SH
TYRANNIDAE					
Brown-capped Tyrannulet	<i>Ornithion brunneicapillus</i>		x	x	SH
Olive-striped Flycatcher	<i>Mionectes olivaceus</i>		x		SH

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Paltry Tyrannulet	<i>Zimmerius vilissimus</i>		x	x	SH
Yellow-crowned Tyrannulet	<i>Tyrannulus elatus</i>		x	x	SH
Forest Elaenia	<i>Myiopagius gaimardii</i>		x		SH
Black-capped Pygmy Tyrant	<i>Myiornis atricapillus</i>		x	x	P, V, SH
Southern Bentbill	<i>Oncostoma olivaceum</i>		x		SH
Brownish Twistwing	<i>Cnipodectes subbrunneus</i>		x		SH, R
Olivaceous Flatbill	<i>Rhynchocyclus olivaceus</i>		x		P, V, SH
Yellow-margined Flycatcher	<i>Tolmomyias assimilis</i>		x		SH
Golden-crowned Spadebill	<i>Platyrinchus coronatus</i>		x		P, V, SH
Ruddy-tailed Flycatcher	<i>Terentriacus erythrurus</i>		x		SH
Sulphur-rumped Flycatcher	<i>Myiobius sulphureipygius</i>		x		P, V, SH
Bright-rumped Attila	<i>Attila spadiceus</i>		x		SH
Chocó Sirystes	<i>Sirystes albogriseus</i>		x	x	SH
Rufous Mourner	<i>Rhytipterna holerythra</i>		x		SH
Dusky-capped Flycatcher	<i>Myiarchus tuberculifer</i>		x		SH
Great Kiskadee	<i>Pitangus sulphuratus</i>	x	x	x	SH
Grey-capped Flycatcher	<i>Myiozetetes granadensis</i>		x		SH
White-ringed Flycatcher	<i>Conopias albovittatus</i>		x		SH
Streaked Flycatcher	<i>Myiodynastes maculatus</i>		x		SH
Piratic Flycatcher	<i>Legatus leucophaeus</i>		x	x	SH
Tropical Kingbird	<i>Tyrannus melancholicus</i>	x	x	x	SH
COTINGIDAE					
Purple-throated Fruitcrow	<i>Querula purpurata</i>		x	x	SH
Blue Cotinga	<i>Cotinga nattererii</i>		x	x	SH
Rufous Piha	<i>Lipaugus unirufus</i>		x		SH
Black-tipped Cotinga	<i>Carpodectes hopkei</i>		x		SH
PIPRIDAE					
Blue-crowned Manakin	<i>Lepidothrix coronata</i>		x	x	SH
Golden-collared Manakin	<i>Manacus vitellinus</i>		x	x	SH
Golden-headed Manakin	<i>Ceratopira erythrocephala</i>		x		P, SH, R
TITYRIDAE					
Black-crowned Tityra	<i>Tityra inquisitor</i>		x	x	SH
Masked Tityra	<i>Tityra semifasciata</i>		x	x	SH
Russet-winged Schiffornis	<i>Schiffornis stenorhyncha</i>		x	x	SH
White-winged Becard	<i>Pachyrhamphus polychopterus</i>		x	x	SH
VIREONIDAE					
Tawny-crowned Greenlet	<i>Tunchiornis ochraceiceps</i>		x		SH
Lesser Greenlet	<i>Pachysylvia decurtata</i>		x	x	SH
Yellow-browed Shrike-Vireo	<i>Vireolanius eximius</i>		x		SH
CORVIDAE					
Black-chested Jay	<i>Cyanocorax affinis</i>		x	x	SH
HIRUNDINIDAE					
Southern Rough-winged Swallow	<i>Stelgidopteryx ruficollis</i>	x		x	SH
Grey-breasted Martin	<i>Progne chalybea</i>	x		x	SH
Mangrove Swallow	<i>Tachycineta albilinea</i>	x			SH

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TROGLODYTIDAE					
Scaly-breasted Wren	<i>Microcerculus marginatus</i>		x		SH
House Wren	<i>Troglodytes aedon</i>	x		x	SH
Bay Wren	<i>Cantorchilus nigricapillus</i>				SH, R
White-breasted Wood Wren	<i>Henicorhina leucosticta</i>		x	x	SH
Song Wren	<i>Cyphorhinus phaeocephalus</i>		x	x	SH
White-headed Wren	<i>Campylorhynchus albobrunneus</i>		x		SH
Sooty-headed Wren	<i>Phlegopedius spadix</i>		x		SH
Stripe-throated Wren	<i>Cantorchilus leucopogon</i>		x		SH
POLIOPTILIDAE					
Tawny-faced Gnatwren	<i>Microbates cinereiventris</i>		x		SH
Slate-throated Gnatcatcher	<i>Polioptila schistaceigula</i>		x	x	SH
TURDIDAE					
Clay-coloured Thrush	<i>Turdus grayi</i>	x	x	x	SH
PARULIDAE					
Buff-rumped Warbler	<i>Myiothlypis fulvicanda</i>		x	x	P, V, SH
THRAUPIDAE					
White-shouldered Tanager	<i>Tachyphonus luctuosus</i>		x	x	SH
Blue Dacnis	<i>Dacnis cayana</i>		x	x	SH
Purple Honeycreeper	<i>Cyanerpes caeruleus</i>		x		SH
Red-legged Honeycreeper	<i>Cyanerpes cyaneus</i>		x	x	SH
Shining Honeycreeper	<i>Cyanerpes lucidus</i>		x	x	SH
Scarlet-browed Tanager	<i>Heterospingus xanthopygius</i>		x		SH
Yellow-backed Tanager	<i>Hemithraupis flavicollis</i>		x		SH
Blue-grey Tanager	<i>Thraupis episcopus</i>	x	x	x	SH
Variable Seedeater	<i>Sporophila corvina</i>	x		x	SH
Thick-billed Seed Finch	<i>Sporophila funerea</i>			x	SH
Bananaquit	<i>Coereba flavicola</i>		x	x	SH
Dusky-faced Tanager	<i>Mitrospingus cassinii</i>		x		SH
Slate-coloured Grosbeak	<i>Saltator grossus</i>		x	x	SH
CARDINALIDAE					
Lemon-spectacled Tanager	<i>Chlorothraupis olivacea</i>		x		P, SH
Blue-black Grosbeak	<i>Cyanocompsa cyanoides</i>		x		SH
ICTERIDAE					
Red-breasted Blackbird	<i>Sturnella militaris</i>			x	SH
Scarlet-rumped Cacique	<i>Cacicus uropygialis</i>		x	x	SH
Yellow-rumped Cacique	<i>Cacicus cela</i>		x	x	SH
Yellow-backed Oriole	<i>Icterus chrysater</i>			x	SH
Crested Oropendola	<i>Psarocolius decumanus</i>		x	x	SH
Black Oropendola	<i>Psarocolius guatimozinus</i>		x		P, SH
FRINGILLIDAE					
Thick-billed Euphonia	<i>Euphonia lanirostris</i>		x	x	SH
Fulvous-vented Euphonia	<i>Euphonia fulvicrissa</i>		x		SH
Orange-bellied Euphonia	<i>Euphonia xanthogaster</i>		x		SH